



Fig. 1: *Curcuma yannanensis* N. Liu & S.J. Chen.
A. Habit (not in scale); B. Flower; C. Fertile Bract; D. Bracteole;
E. Calyx; F. Sepals spread out; G. Labellum showing stamen
and ovary

sheathing bases. Sheaths 29-35 cm long, brownish red, villous, margins white hairy, lower sheath bladeless. Petiole 8-30 cm long, glabrous, deeply channeled, green; blade 34-71 x 16-26 cm, oblong elliptic, acuminate, entire, glabrous, green with distinct reddish flush on upper 3/4th part along midrib. Spikes arise from center of the leaf sheath, 18 x 9.5 cm, greenish white; flowers usually 3 in each bract, pale yellow; peduncle to 22 cm long, 0.8 cm diameter, greenish white, terete, glabrous. Fertile bracts 4.2-5.7 x 2.8-3.2 cm, oblong, rounded, creamy white, glabrous, reflexed; comma bract 4-6; 5-6.2 x 1.1-2.5 cm, oblong-elliptic, narrowed at rounded

apex, brightly creamy white, apex purple, glabrous; bracteoles 2; 2.8-3 x 1-1.4 cm, oblong-elliptic, boat-shaped, one keeled, apex shortly 2-lobed to inner one; lobe triangular 2.5 mm long, creamy white, glabrous; calyx tubular at base, unequally 3-lobed, 1-1.25 x 0.6-1 cm, creamish white, tube 7-9 mm long; lobe 2-3 mm long, triangular in outline, apex rounded, reddish tint outside, hirsute on outer surface; corolla tubular, 3.5-3.8 cm long, 3-lobed at apex, tube 1.8-2 cm long, lobes 1.6 x 1.2 cm, triangular in outline, apex rounded, entire, deep purple, 6-nerved, glabrous; labellum tubular at base, 3-lobed, pale yellow with deep band from base to apex; tube 2.8-3.2 cm long, lateral lobes 1.5-1.7 x 0.8-1 cm, oblong, rounded apex, reflexed, creamy white, mid-lobe 2.1-2.3 x 1.6-1.8 cm oblong, rounded, reflexed, apex widen with 2 short lobules, margins entire, glabrous; fertile stamen 1, filament flat 1.5 x 0.6 cm, anther 2-lobed; each lobe 4-4.5 x 1-1.2 mm with 3 mm long spurred on both sides; ovary 2.5-3 x 2-2.5 mm, hairy, trilocular, white.

Fl.: July-August.

Distribution: INDIA: Meghalaya (Jaintia Hills); China.

Habitat: This species was found growing on moist shaded places, on slopes, along nullahs.

Specimen Examined: Samathi-108128, Nonjugi, Jaintia hills, 1,300 m, November 2002 (ASSAM).

Uses: Juice of rhizomes is taken for stomach pain and paste of rhizomes is applied to whole body as it is believed to destroy evil spirit.

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19. *STYLOSANTHES FRUTICOSA* (RETZ.) ALSTON (PAPILIONACEAE) - A NEW RECORD FOR RAJASTHAN¹

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During one of the plant collection visits to Degana tehsil, Nagaur district (Rajasthan), we collected *Stylosanthes fruticosa* (Retz.) Alston from the dry beds of Luni river and

nearby fields. A perusal of literature shows that this genus has not been reported from Rajasthan (Shetty and Singh 1988-1999).

This paper records for the first time the occurrence of *Stylosanthes fruticosa* (Retz.) Alston from Rajasthan. It is known, so far, from the plains of Gujarat and Tamil Nadu (Matthew 1983). The specimens of *Stylosanthes fruticosa* collected from Alniyavas, Degana tehsil, Nagaur district have been housed in the Herbarium, Department of Botany, Government Dungar College, Bikaner, Rajasthan. The identification of the species is based on Matthew (1983).

Stylosanthes fruticosa (Retz.) Alston in Trimen, Fl. Ceylon 6 (suppl.): 77. 1931; Nooteb, Rainwardtia 5: 449. 1961; Verda, Kew Bull. 24: 59. 1970; Matthew, III. Fl. Tamil Nadu Carnatic t. 224. 1982.

Stylosanthes mucronata Willd., Sp. Ppl. 3: 166. 1802, nom. illegit.; Wight & Am. Prodr. fl. Ind. orient. 218. 1834; Hook f. Fl. Brit. India 2; 148. 1876; Gamble. Fl. Madras 1: 326 (230). 1918; Matthew, Mat. Fl. Tamil Nadu Carnatic 198. 1981.

Subshrub to 75 cm; branchlets appressed tomentose. Leaves trifoliate, to 1.5 cm; leaflets oblong-elliptic, 0.7-2.5 x 0.5-0.7 cm, chartaceous, prominently nerved, base subacute, margin ciliate, apex obtuse, stiff-mucronate; petiole to 8 mm; petiolule up to 1 mm; stipules 2 mm, adnate to petiole and sheathing. Flowers, 3-5 in terminal heads, sessile 4 mm across;

primary bracts to 1.5 cm, bristly; secondary bracts to 6 mm; bracteoles 2. Receptacle 6 mm long, filiform, tomentose; upper 4 calyx-lobes subconnate, to 1 mm, ciliate; lower one lanceolate, 2 mm. Corolla yellow; petals shortly clawed, inserted at the throat of calyx-tube; standard orbicular, 6 mm, claw 6 mm; wings obovate, 4 mm, auriculate; keels oblong, incurved, 4.5 mm, apex obtuse. Staminal sheath 4 mm. Stamens monadelphous; filaments unequal, 1-2 mm; anthers dimorphic. Ovary subsessile; ovules 2 or 3; style filiform, 1 cm, glabrous; stigma minute. Pod oblong, 4 mm, beaked; strongly nerved; seeds reniform, 2 mm.

Flowers: November-January.

Pods: December-February.

Specimens Examined: Forest area. Near Luni river, Alniyavas, Nagaur district Rajasthan. Sharma & Aggarwal. 1236 (Dungar College Herbarium)

Distribution: Africa, Madagascar, Sri Lanka, India.

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20. POLLINATION BIOLOGY OF THE ORCHID TREE *BAUHINIA VARIEGATA* L. (CAESALPINIACEAE) IN THE EASTERN GHATS, INDIA¹

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The flowers of Caesalpiniaceae are less specialised than those of their counterpart members of Mimosaceae and Papilionaceae. They are open, usually with exposed pollen and nectar available to specialised and non-specialised pollen vectors (Hokche and Ramirez 1990). The species of Caesalpiniaceae exhibit a great variety of pollinating agents and mechanisms with an entomophilous trend (Arroyo 1981). The genus *Bauhinia* contains about 250 species distributed in the tropics of both hemispheres. It has 37 Indian species with flowers white, yellow and variegated red, and yellow. Vogel (1954) reported that *B. galpinii* and *B. mucronata* are sphingophilous in Africa, and Arroyo (1981) based on floral characteristics suggested that many other species of *Bauhinia*

are probably sphingophilous. Hokche and Ramirez (1990) reported that pollination biology in neotropics is associated with the life form of *Bauhinia* species. Tree species *B. aculeata*, *B. multinervia*, *B. pauletia* and *B. unguolata* have large white flowers and produce more nectar with high sugar concentration. In *B. aculeata*, the nectar is sucrose rich, and in other species it is hexose rich; but all these tree species are mainly nocturnal and bat-pollinated. Fischer (1992) also reported bat-pollination in *B. unguolata*. Liana species, *B. glabra*, *B. guianensis* and *B. rutilans*, produce relatively small diurnal flowers with different colours and variations in form and colour of the upper petal; all these are pollinated by bees, wasps, butterflies and hummingbirds (Hokche and Ramirez 1990).